

We claim:

*Sink A*

1. A concentrated quaternary ammonium compound solution comprising:  
a quaternary ammonium compound with a concentration from greater than  
about 10% by weight; and  
at least one solubility enhancing agent.

2. The solution of claim 1, wherein said solubility enhancing agent is an alcohol  
or a polyglycol.

3. The solution of claim 2, wherein said solubility enhancing agent is selected  
from the group consisting of a monohydric alcohol, a dihydric alcohol, a trihydric alcohol,  
a polyethylene glycol and a combination thereof.

4. The solution of claim 3, wherein said monohydric alcohol is an aliphatic  
alcohol, said dihydric alcohol is a glycol or a derivative thereof, and said trihydric alcohol  
is glycerol or a derivative thereof.

5. The solution of claim 4, wherein said quaternary ammonium compound  
ranges from greater than about 10% by weight to about 60% by weight.

6. The solution of claim 5, wherein said quaternary ammonium compound  
ranges from greater than about 10% by weight to about 50% by weight.

7. The solution of claim 6, wherein said quaternary ammonium compound  
ranges from greater than about 10% by weight to about 40% by weight.

8. The solution of claim 7, wherein said quaternary ammonium compound  
ranges from greater than about 10% weight to about 30% weight.

9. The solution of claim 8, wherein said quaternary ammonium compound  
ranges from about 15% weight to about 25% by weight.

10. The solution of claim 5, wherein said solubility enhancing agent is present at a concentration of up to about 70% by weight.

5 max is 60%

11. The solution of claim 10, wherein said solubility enhancing agent is present at a concentration ranging from about 10% by weight to about 60% by weight.

Claim 1 req. > 10% / 11 is broader

12. The solution of claim 6, wherein said alcohol is present at a concentration ranging from about 10% by weight to about 60% by weight. 50% is max

13. The solution of claim 7, wherein said alcohol is present at a concentration ranging from about 10% by weight to about 60% by weight.

7: 10% is max

14. The solution of claim 13, wherein said quaternary ammonium compound is present at a concentration of about 40% by weight and said alcohol is present at a concentration ranging from about 50% by weight to about 60% by weight.

15. The solution of claim 14, wherein said quaternary ammonium compound is present at a concentration of about 40% by weight and said alcohol is present at a concentration ranging from about 55% by weight to about 60% by weight, and wherein said solution further comprises water up to about 5% by weight.

16. The solution of claim 15, wherein said quaternary ammonium compound is present at a concentration of about 40% by weight, said alcohol is present at a concentration of about 57% by weight and said water is present at about 3% by weight.

17. The solution of claim 14, wherein said alcohol is propylene glycol.

18. The solution of claim 15, wherein said alcohol is propylene glycol.

19. The solution of claim 16, wherein said alcohol is propylene glycol.

20. The solution of claim 5, wherein said quaternary ammonium compound is present at a concentration of about 40% by weight and said alcohol is present at a concentration of about 50% by weight.

21. The solution of claim 5, wherein said quaternary ammonium compound is present at a concentration of about 20% by weight and said alcohol is present at a concentration of about 50% by weight.

22. The solution of claim 20, wherein said alcohol is a combination of ethyl alcohol and propylene glycol.

23. The solution of claim 21, wherein said alcohol is a combination of ethyl alcohol and propylene glycol.

24. The solution of claim 5, wherein said quaternary ammonium compound is present at a concentration of about 40% by weight and said alcohol is glycerol and is present at a concentration of up to about 20% by weight.  
*incl. Oils*

25. The solution of claim 1, wherein said quaternary ammonium compound is selected from the group consisting of an alkylpyridinium salt, a tetra-alkylammonium salt, and alkylalicyclic ammonium salt.

26. The solution of claim 25, wherein said quaternary ammonium salt is an alkylpyridinium salt.

27. The solution of claim 26, wherein said alkylpyridinium salt is cetylpyridinium chloride.

28. The solution of claim 16, wherein said quaternary ammonium compound is selected from the group consisting of an alkylpyridinium salt, a tetra-alkylammonium salt, and alkylalicyclic ammonium salt.

29. The solution of claim 28, wherein said quaternary ammonium salt is an alkylpyridinium salt.

30. The solution of claim 29, wherein said alkylpyridinium salt is cetylpyridinium chloride.

31. A concentrated quaternary ammonium compound solution consisting essentially of:

a quaternary ammonium compound with a concentration from greater than about 10% by weight; and

at least one solubility enhancing agent.

32. The solution of claim 31, wherein said quaternary ammonium compound is present at a concentration of about 40% by weight and said solubility enhancing agent is present at a concentration ranging from about 50 to about 60% by weight.

33. The solution of claim 32, wherein said quaternary ammonium compound is cetylpyridinium chloride and said solubility enhancing agent is propylene glycol.

*Sue  
TBD*  
34. A quaternary ammonium compound solution consisting essentially of:  
a quaternary ammonium compound with a concentration of up to about 1%  
by weight;  
at least one solubility enhancing agent; and  
water.

35. The solution of claim 34, wherein said quaternary ammonium compound has a concentration of about 0.01% to about 1%.

36. The solution of claim 35, wherein said solubility enhancing agent is an alcohol or a polyglycol.

*Sab 3*  
37. The solution of claim 36, wherein said solubility enhancing agent is selected from the group consisting of a monohydric alcohol, a dihydric alcohol, a trihydric alcohol, a polyethylene glycol, and a combination thereof.

38. The solution of claim 37, wherein said monohydric alcohol is an aliphatic ethanol, said dihydric alcohol is a glycol or a derivative thereof, and said trihydric alcohol is glycerol or a derivative thereof.

39. The solution of claim 34, wherein said solution is in sprayable or mistable form.

40. A method for preventing the growth of microorganisms on a food product comprising:

contacting said food product with a microbial growth inhibiting effective amount of a quaternary ammonium compound, wherein the application time of said compound is for at least a fraction of a second to prevent the growth of microorganisms on said food product.

41. The method of claim 40, wherein said application time is from about 0.1 seconds to about 5 seconds.

42. The method of claim 41, wherein said application time is for about 1 second to about 5 seconds.

43. The method of claim 40, wherein said contact is by spraying or misting.

*Add 7  
a<sup>3</sup>  
Add B4*

*Add 7  
J1*

*XO  
J1*